

CLAIMS

1. A method for preparing a differentiated cell, comprising the steps of:

- 5 A) obtaining a mixture by mixing
 a) an adipose-derived precursor cell, and
 b) a differentiated cell corresponding to
a desired site; and
 B) culturing the mixture under sufficient
10 conditions which allow the adipose-derived precursor cell
to differentiate.

2. A method according to claim 1, wherein the differentiated
15 cell is a mesenchymal cell.

3. A method according to claim 1, wherein the differentiated
cell is selected from the group consisting of adipocytes,
bone marrow cells, osteoblasts, chondrocytes, fibroblasts,
myofibroblasts, nerve cells, skeletal muscle cells, cardiac
20 muscle cells, vascular endothelial cells, vascular smooth
muscle cells, hepatic cells, and renal cells.

4. A method according to claim 1, wherein the adipose-derived
precursor cell is a cell expressing at least one protein
25 selected from the group consisting of CD13, CD29, CD34, CD36,
CD44, CD49d, CD54, CD58, CD69, CD71, CD73, CD90, CD105, CD106,
CD151, and SH3.

5. A method according to claim 4, wherein the adipose-derived
30 precursor cell is a cell expressing CD13, CD29, CD34, CD36,
CD44, CD49d, CD54, CD58, CD69, CD71, CD73, CD90, CD105, CD106,
CD151, and SH3.

6. A method according to claim 4, wherein the adipose-derived precursor cell is the cell further expressing at least one protein selected from the group consisting of CD31, CD45, CD117, and CD146.

5

7. A method according to claim 1, wherein the adipose-derived precursor cell is a cell not expressing CD56.

10

8. A method according to claim 1, wherein the adipose-derived precursor cell is a cell expressing CD49d but not CD56.

9. A method according to claim 1, further comprising providing an agent for promoting differentiation into a differentiated cell.

15

10. A method according to claim 1, wherein the mixture is cultured in a medium containing at least one ingredient selected from the group consisting of adrenocortical steroids, insulin, glucose, indomethacin, isobutyl-methylxanthine (IBMX), ascorbic acid and a derivative thereof, glycerophosphate, estrogen and a derivative thereof, progesterone and a derivative thereof, androgen and a derivative thereof, growth factors, pituitary gland extracts, pineal body extracts, retinoic acid, vitamin D, thyroid hormone, fetal bovine serum, equine serum, human serum, heparin, sodium hydrogen carbonate, HEPES, albumin, transferrin, selenates, linoleic acid, 3-isobutyl-1-methylxanthine, demethylating agent, histone deacetylating agents, activin, cytokine, hexamethylenebisacetamide (HMBA), dimethylacetamide (DMA), dibutyl cAMP (dbcAMP), dimethylsulfoxide (DMSO), iododeoxyuridine (IdU), hydroxyurea (HU), cytosine arabinoside (AraC), mitomycin C (MMC), sodium butyrate (NaBu),

20

25

30

polybrene, and selenium.

11. A method according to claim 1, wherein the abundance ratio of the adipose-derived precursor cell to the differentiated cell corresponding to the desired site is higher than the abundance ratio of a stem cell to the differentiated cell in healthy tissue at the desired site.

12. A method according to claim 1, wherein the proportion of the adipose-derived precursor cell in the mixture is higher than the proportion of a stem cell in healthy tissue at the desired site.

13. A method according to claim 1, wherein the proportion of the adipose-derived precursor cell in the mixture is about 2 to about 10 times higher than the proportion of a stem cell in healthy tissue at the desired site.

14. A cell mixture, comprising:
an adipose-derived precursor cell; and
a differentiated cell corresponding to a desired site.

15. A cell mixture according to claim 14, wherein the abundance ratio of the adipose-derived precursor cell to the differentiated cell corresponding to the desired site is higher than the abundance ratio of a stem cell to the differentiated cell in healthy tissue at the desired site.

16. A cell mixture according to claim 14, wherein the abundance ratio of the adipose-derived precursor cell to the differentiated cell corresponding to the desired site is about 2 to about 10 times higher than the abundance ratio

of a stem cell to the differentiated cell in healthy tissue at the desired site.

5 17. A cell mixture according to claim 14, wherein the abundance ratio of the adipose-derived precursor cell to the differentiated cell corresponding to the desired site is about 2 to about 5 times higher than the abundance ratio of a stem cell to the differentiated cell in healthy tissue at the desired site.

10

18. A cell mixture according to claim 14, wherein the cell mixture is exposed under sufficient conditions which allow the adipose-derived precursor cell to differentiate.

15

19. A cell mixture according to claim 14, wherein the differentiated cell corresponding to the desired site is an adipocyte, and the proportion of the adipose-derived precursor cell in the mixture is higher than the proportion of the adipose-derived precursor cell in fat tissue.

20

20. A cell mixture according to claim 19, wherein the proportion of the adipose-derived precursor cell in the mixture is higher than the proportion of the adipose-derived precursor cell in healthy tissue at the desired site.

25

21. A cell mixture according to claim 19, wherein the proportion of the adipose-derived precursor cell in the mixture is about 2 to about 10 times higher than the proportion of the adipose-derived precursor cell in healthy tissue at the desired site.

30

22. A cell mixture according to claim 19, wherein the adipose-derived precursor cell is derived from suctioned

fat.

23. A cell mixture according to claim 19, wherein the
adipose-derived precursor cell is derived from a liquid
5 portion of an aspirate from liposuction.

24. A composition for cell implantation, comprising:
a) an adipose-derived precursor cell; and
b) a differentiated cell corresponding to a desired
10 site.

25. A composition according to claim 24, wherein the
composition is implanted into the desired site.

15 26. A composition according to claim 24, wherein the
differentiated cell is a mesenchymal cell.

27. A composition according to claim 24, wherein the
differentiated cell is selected from the group consisting
20 of adipocytes, bonemarrow cells, osteoblasts, chondrocytes,
fibroblasts, myofibroblasts, nerve cells, skeletal muscle
cells, cardiac muscle cells, vascular endothelial cells,
vascular smooth muscle cells, hepatic cells, and renal cells.

25 28. A composition according to claim 24, wherein the
differentiated cell is provided in suctioned fat.

29. A composition according to claim 24, wherein the
differentiated cell is provided in a liquid portion of an
30 aspirate from liposuction.

30. A composition according to claim 24, further comprising
at least one ingredient selected from the group consisting

of adrenocortical steroids, insulin, glucose, indomethacin, isobutyl-methylxanthine (IBMX), ascorbic acid and a derivative thereof, glycerophosphate, estrogen and a derivative thereof, progesterone and a derivative thereof, 5 androgen and a derivative thereof, growth factors, pituitary gland extracts, pineal body extracts, retinoic acid, vitamin D, thyroid hormone, fetal bovine serum, equine serum, human serum, heparin, sodium hydrogen carbonate, HEPES, albumin, transferrin, selenates, linoleic acid, 10 3-isobutyl-1-methylxanthine, demethylating agent, histone deacetylating agents, activin, cytokine, hexamethylenebisacetamide (HMBA), dimethylacetamide (DMA), dibutyl cAMP (dbcAMP), dimethylsulfoxide (DMSO), iododeoxyuridine (IdU), hydroxyurea (HU), cytosine 15 arabinoside (AraC), mitomycin C (MMC), sodium butyrate (NaBu), polybrene, and selenium.

31. A composition according to claim 24, wherein the 20 adipose-derived precursor cell is allogenic to the differentiated cell.

32. A composition according to claim 24, wherein the 25 adipose-derived precursor cell is isologous to the differentiated cell.

33. A method for treatment or prevention of a disease, a disorder or an abnormal condition attributed to the deficiency of a differentiated cell, comprising the steps of:

30 A) providing a composition comprising:
a) an adipose-derived precursor cell; and
b) a differentiated cell corresponding to
a desired site; and

B) administering the composition to a subject.

34. A medicament for treatment or prevention of a disease,
a disorder or an abnormal condition attributed to the
5 deficiency of a differentiated cell, comprising:

- a) an adipose-derived precursor cell;
- b) a differentiated cell corresponding to a desired
site; and
- c) a pharmaceutically acceptable carrier.

10

35. Use of a mixture of: a) an adipose-derived precursor
cell; and b) a differentiated cell corresponding to a desired
site, for preparation of a medicament for treatment or
prevention of a disease, a disorder or an abnormal condition
15 attributed to the deficiency of a differentiated cell.

36. A method for treatment or improvement of a cosmetic
condition, comprising the steps of:

- A) providing a composition comprising:
 - 20 a) an adipose-derived precursor cell; and
 - b) a differentiated cell corresponding to
a desired site; and

B) administering the composition to a subject.

25 37. A method according to claim 36, wherein the
differentiated cell corresponding to the desired site is
an adipocyte.

30 38. A method according to claim 36, wherein the
differentiated cell corresponding to the desired site is
derived from abdominal fat.

39. A method according to claim 36, wherein the cosmetic

condition is of chest.

40. A method according to claim 36, further comprising
obtaining the differentiated cell corresponding to the
5 desired site from fat of the subject.

41. A method according to claim 40, the step of obtaining
fat is performed by suctioning fat.

10 42. A method according to claim 36, further comprising
obtaining the adipose-derived precursor cell from the abdomen
of the subject.

43. A method according to claim 36, further comprising
15 obtaining the adipose-derived precursor cell from suctioned
fat of the subject.

44. A method according to claim 43, further comprising
obtaining the adipose-derived precursor cell from a liquid
20 portion of an aspirate from liposuction.

45. A medicament for treatment or improvement of a cosmetic
condition, comprising:

- 25 a) an adipose-derived precursor cell;
- b) a differentiated cell corresponding to a desired
site; and
- c) a pharmaceutically acceptable carrier.

46. A medicament according to claim 45, wherein the cosmetic
30 condition is of chest.

47. A medicament according to claim 45, wherein the
differentiated cell corresponding to the desired site is

an adipocyte.

48. A medicament according to claim 45, wherein the differentiated cell corresponding to the desired site is
5 an abdominal adipocyte.

49. A medicament according to claim 45, wherein the adipose-derived precursor cell is derived from abdominal fat.
10

50. A medicament according to claim 45, wherein the proportion of the adipose-derived precursor cell in the medicament is higher than the proportion of a stem cell in healthy tissue at the desired site.
15

51. A medicament according to claim 45, wherein the pharmaceutically acceptable carrier comprises a cell culture medium or a buffer.

52. Use of a mixture of: a) an adipose-derived precursor cell; and b) a differentiated cell corresponding to a desired site, for preparation of a medicament for treatment or improvement of a cosmetic condition.
20

53. Use according to claim 52, wherein the abundance ratio of the adipose-derived precursor cell to the differentiated cell corresponding to the desired site is higher than the abundance ratio of a stem cell to the differentiated cell in healthy tissue at the desired site.
25

54. Use according to claim 52, wherein the proportion of the adipose-derived precursor cell in the mixture is about 2 to about 10 times higher than the proportion of a stem
30

cell in healthy tissue at the desired site.